SYNOPSIS OF INDIAN STANDARDS

Title: IS/ ISO 20816-4:2018 'Mechanical vibration – Measurement and evaluation of machine vibration : Part 4 Gas turbines in excess of 3 Mw, with fluid-film bearings' **(First Revision)**

a) Scope This document is applicable to land-based gas turbines with fluid-film bearings and power outputs greater than 3 MW and an operating speed under load between 3 000 r/min and 30 000 r/min. In some cases (see the list of exclusions below), this includes other rotating machinery coupled either directly or through a gearbox. The evaluation criteria provided in this document are applicable to the vibration of the main input and output bearings of the gearbox but are not applicable to the vibration of the internal gearbox bearings nor to the assessment of the condition of those gears. Specialist techniques required for evaluating the condition of gears are outside the scope of this document.
This document is not applicable to the following:
i) gas turbines with power outputs greater than 40 MW at rated speeds of 1 500 r/min, 1 800 r/min,
3 000 r/min or 3 600 r/min (see ISO 20816-2);
ii) aero-derivative gas turbines (including gas turbines with dynamic properties similar to those of aero-derivatives);
iii) gas turbines with outputs less than or equal to 3 MW (see ISO 7919-3 and ISO 10816-3);
iv) turbine driven generators (see ISO 20816-2, ISO 7919-3 and ISO 10816-3);
v) turbine driven pumps (see ISO 10816-7);
vi) turbine driven rotary compressors (see ISO 7919-3 and ISO 10816-3);
vii) the evaluation of gearbox vibration (see this clause) but does not preclude monitoring of gearbox vibration;
viii)the evaluation of combustion vibration but does not preclude monitoring of combustion vibration;
ix) rolling element bearing vibration.
This document establishes provisions for evaluating the severity of the following *in-situ* broad-band
vibrations:
a) structural vibration at all main bearing housings or pedestals measured radial (i.e. transverse) to
the shaft axis;
b) structural vibration at thrust bearing housings measured in the axial direction;
c) vibration of rotating shafts radial (i.e. transverse) to the shaft axis at, or close to, the main bearings.

These are in terms of the following:
— vibration under normal steady-state operating conditions;
— vibration during other (non-steady-state) conditions when transient changes are taking place,
including run up or run down, initial loading and load changes;
— changes in vibration which can occur during normal steady-state operation.

b) Salient features of content: This document is applicable to land-based gas turbines with fluid-film bearings and power outputs greater than 3 MW and an operating speed under load between 3 000 r/min and 30 000 r/min.